Analysis of Determining Leading Sectors in West Java Province in Facing the Global Market

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ABSTRACT. The strategy for regional economic development in West Java, Indonesia, involves focusing on the leading sectors of each district/city to compete in the global market. This study utilised Klassen Typology Analysis, Location Quotient (LQ) Analysis, and Shift Share Analysis using data from 2020-2022 to determine the economic structure and identify leading sectors. West Java, with 18 districts and 9 cities, exhibits unique leading sectors. Key sectors include Health and Social Activities, Water Supply, Waste Management, Recycling, Accommodation and Food Services, Transportation and Warehousing, Real Estate, Business Services, Other Services, and agriculture. Economic transformation has occurred, shifting from agriculture to industry, though agriculture remains vital. Advanced districts and urban areas see a shift towards industry, trade, and finance. Bandung City is evolving into a service hub, followed by Depok and Bogor City, reflecting diverse economic patterns across West Java's districts and cities in response to global competition.
Keywords: *Leading sectors, Klassen typology, Location Quotient, Shift Share.*

1. Introduction

The development of the regional economy and the strengthening of local economic competitiveness will significantly impact the development of national and international economic competitiveness. Currently, the economic development of a region has not been able to improve the population's welfare significantly. This is due to the perception that the development patterns implemented by regions lack systematic approaches. The underdevelopment of the economic potential of a region leads to a decrease in regional economic competitiveness. This, in turn, results in a less significant influx of investments (Nusantoro, Jawoto, 2011).

Based on the above, to achieve successful and beneficial regional economic development, it is necessary to focus on developing the potential of local economies through the development of leading sectors. To ensure the sustainable development of regional leading sectors and their significant multiplier effects on other products, it is advisable to design the development of these sectors and products based on clustering principles (Sa'id, 2007). Building a cluster is expected to bring several benefits by transforming comparative advantages into competitive advantages (Andriyanto et al., 2015; Kuncoro, M, 2005). Data in Table 1 indicates that Bandung City has higher revenue than Bandung Regency and other districts/cities based on the PAD realisation indicator. From 2016 to 2019, Bandung City consistently had higher PAD than other districts/cities. In 2016, Bandung City's PAD was around IDR 2.2 trillion, reaching IDR 3 trillion in 2019. Other areas that closely rival Bandung City in terms of PAD are Bogor Regency, Bekasi Regency, and Bekasi City.

Table1
Recapitulation of Regional Own-Source Revenue (PAD) of the West Java Provincial Government, 2016 - 2019 (in thousands of Indonesian Rupiah)

District/City	Realisation of Local Government Revenue of District/City (in Thousands of Indonesian Rupiah)				
		2016	2017	2018	2019
Bogor	-	2299862658.79	3041872447.91	2794723739.66	2451753202
Sukabumi	-	548936312.98	799499855.49	565369087	556744295
Cianjur	-	455156876.76	535232527.17	569844590.54	602556114
Bandung	-	856514244	858875587.18	927543321	849284377
Garut	-	400395595.89	688910453.27	421299024.44	472939892.13
Tasikmalaya	-	216227322	406334651.92	248420386.33	257296742.99
Ciamis	-	204759436	222938975.24	234610670.22	238094915
Kuningan	-	262212854	346954340.47	303218053	331071737
Cirebon	-	529050285.48	557754725.36	584810843.48	597481096
Majalengka	-	331527582.02	513783824.02	449588421	473449999.99
Sumedang	-	345804641.95	553257332.80	432196794.86	530215807

R. Hurriyati et al. (eds.), *Proceedings of the 8th Global Conference on Business, Management, and Entrepreneurship (GCBME 2023)*,
Advances in Economics, Business and Management Research 288,
https://doi.org/10.2991/978-94-6463-443-3_128

Indramayu	-	351177413.77	577594379.05	419892815.09	439593641
Subang	-	360621618.14	234641213.11	400755045	473715728
Purwakarta	-	341116103.33	472480560.98	368851052.93	464858009.47
Karawang	-	1003354916	1398309963.12	1169569261.04	1414407023
Bekasi	-	1917814673.70	2311805849.24	2094369341.85	2183381401
Bandung Barat	-	376220675.01	609916387.81	422495953.55	581055644.71
Pangandaran	-	66385348.15	118011275.04	111217120.15	144933724
Kota Bogor	-	783873587.22	977803906.99	912197971.29	944394651
Kota Sukabumi	-	295257670.78	359024019.51	362342291	376146456.96
Kota Bandung	-	2152755704	2578457420.89	2571591784	3055014614
Kota Cirebon	-	363115250.98	443929979.59	440169142.56	478150076.45
Kota Bekasi	-	1686600486.52	1757641804.43	2001150459.49	3273595338.22
Kota Depok	-	922533784.27	1210748605.56	1059700282	1114036194.64
Kota Cimahi	-	286049614	383911991.30	335016530.26	444244273.04
Kota Tasikmalaya	-	254532699.88	354840203.84	280014887.93	298057366.37
Kota Banjar	-	116321781.01	125454618.14	116167055.64	131881763.35
Provinsi Jawa Barat	-	17042895113.67	17102520315.84	19642915448.76	19759789101

2. Method

This research was conducted in all districts and cities in West Java Province. The data used in this study are secondary data, including the Gross Regional Domestic Product (GRDP) of districts and cities in West Java Province from 27 regions for the period 2020-2022, GRDP of West Java Province for the period 2020-2022, and other relevant secondary data for the research objectives.

Several analytical tools are used to analyse comparative advantages, including Klassen Typology, Location Quotient (LQ), and Shift-Share Analysis (SS).

3. Results

Results of *Klassen Typology*

Klassen Typology identifies the position of economic sectors in the districts/cities of West Java Province as reference areas. The results of Klassen Typology analysis primarily focus on the developed sectors that are rapidly growing (developed sectors) in Quadrant I. Quadrant I represents sectors with a higher growth rate (si) compared to the growth rate of the same sectors in the reference area (s) and a higher sector contribution to GDP (ski) compared to the contribution of the same sectors to the reference area's GDP (SK).

The results of the Klassen Typology analysis have aided in identifying the positions of economic sectors within the districts and cities of West Java Province as reference areas. The primary focus of the Klassen Typology analysis has been on sectors that are rapidly growing, situated in Quadrant I. Quadrant I signifies sectors with a higher growth rate (si) compared to the growth rate of the same sectors in the reference area (s) and a greater sector contribution to GDP (ski) compared to the contribution of the same sectors to the reference area's GDP (sk).

The outcomes of this analysis reveal several leading sectors in the West Java region. These include the agricultural, forestry, and fisheries sectors, which take precedence in Sukabumi, Cianjur, Garut, Tasikmalaya, and Pangandaran districts. Furthermore, the mining and quarrying sector emerges as a leading sector in Bogor, Bandung, Sukabumi, Garut, and Majalengka districts. The manufacturing sector plays a vital role in Bandung, Purwakarta, and Karawang districts. In contrast, the electricity and gas supply sector is a priority in the Bogor, Purwakarta, and Bekasi districts.

This research focuses more on the West Java Province and utilises the Klassen Typology analysis method to identify leading economic sectors. The findings of this study reveal the prominent economic sectors within the region, including agriculture, mining, manufacturing, and others, with varying priorities across different districts and cities. In contrast, previous research (Saaty et al., 2012; Chen et al., 2017; Chrisia et al., 2018; Belotti et al., 2018) had different focuses and analytical methods potentially related to different

geographical areas. These differences reflect the diversity in regional economic research approaches but collectively provide valuable insights for regional economic development in various contexts.

Results of *Location Quatient Index (*LQ)

The Location Quotient (LQ) index calculations for the districts and cities of West Java Province reveal several key findings. In rural areas of 18 districts, priority sectors include agriculture, forestry, fisheries, education services, and mining and quarrying, indicating their higher concentration than the regional average. Urban areas, on the other hand, prioritise financial and insurance services, healthcare and social activities, and company services, with a stronger emphasis on service sectors. Overall, agriculture, forestry, and fisheries remain priority sectors for the entire West Java Province, along with public administration, education services, healthcare and social activities, and various other service-oriented sectors. Non-priority sectors encompass mining and quarrying, manufacturing industries, electricity and gas supply, and information and communication. This analysis underscores the distinctive economic profiles of rural and urban areas within the province, with agriculture maintaining its significance across the region.

Shift Share Analysis (Net Shift Indicator, PB) Plotting With LQ Values

This shift-share analysis captures the evolving economic dynamics within West Java and underscores the importance of recognising the unique economic trajectories of different regions within the province. While some areas continue to rely on agriculture as their primary economic driver, others are moving towards a more diverse and service-oriented economic landscape, aligning with broader trends in urbanisation and economic development.

Table 2 further illustrates these economic changes by providing the Average Location Quotient (LQ) and Net Shift Value (PB) for the districts and cities in West Java Province. This table offers a comprehensive view of the extent of these shifts, allowing policymakers and analysts to understand the economic dynamics within the region better.

Table 2. Average Location Quotient (LQ) and Net Shift Value (PB) of Districts and Cities in West Java Province

No	Sector	LQ		PB		Description
		Index	Position	Value	Position	
1	Agriculture, Forestry, and Fisheries	1,653	> 1	-0,043	< 0	Potential sector
2	Mining and Quarrying	0,961	< 1	-0,319	< 0	Lagging sector
3	Manufacturing	0,623	< 1	0,007	> 0	Developing sector
4	Electricity and Gas Provision	0,938	< 1	0,060	> 0	Developing sector
5	Water Supply, Waste Management, Waste, and Recycling	1,020	> 1	0,043	> 0	Promising sector
6	Construction	1,165	> 1	-0,021	< 0	Potential sector
7	Wholesale and Retail Trade: Repair of Motor Vehicles and Motorcycles	1,251	> 1	-0,015	< 0	Potential sector
8	Transportation and Warehousing	1,321	> 1	0,006	> 0	Promising sector
9	Accommodation and Food Services	1,264	> 1	0,018	> 0	Promising sector
10	Information and Communication	0,940	< 1	0,042	> 0	Developing sector

11	Financial and Insurance Services	1,420	> 1	-0,046	< 0	Sektor potential
12	Real Estate	1,322	> 1	0,084	> 0	Promising sector
13	Business Services	1,394	> 1	0,078	> 0	Promising sector
14	Public Administration, Defense, and Mandatory Social Security	1,516	> 1	-0,112	< 0	Potential sector
15	Education Services	1,434	> 1	-0,032	< 0	Potential sector
16	Health and Social Activities	1,416	> 1	0,050	> 0	Promising sector
17	Other Services	1,072	> 1	0,036	> 0	Promising sector

The mapping results presented in Table 2 offer a comprehensive overview of the leading sectors in West Java, determined by plotting Location Quotient (LQ) and Net Shift (PB) values. These values are critical indicators in identifying sectors that play pivotal roles in the regional economy. When we examine the data in Tables 3 and 4 together, some noteworthy patterns emerge.

Table 4
Identification of Leading Sectors Based on LQ and PB Plotting in West Java

	PB > 0	
	Quadrant III **EMERGING SECTOR** Manufacturing; Electricity and Gas Supply; Information and Communication	**Quadrant I** **LEADING SECTORS** Healthcare and Social Activities, followed by Water Supply, Waste Management, and Recycling; Accommodation and Food Services; Transportation and Warehousing; Real Estate; Business Services; and Other Services.
LQ < 1	**Quadrant IV** **LAGGING SECTOR** Mining and Quarrying	**Quadrant II** **POTENTIAL SECTOR** Agriculture, Forestry, and Fisheries; Construction; Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles; Financial and Insurance Services; Education Services; and Administration of Government, Defense, and Compulsory Social Security sector.
	PB < 0	**LQ ≥ 1**

The potential sectors in West Java that can be developed into leading sectors in the future are Agriculture, Forestry, and Fisheries; Construction; Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles; Financial and Insurance Services; Education Services; and Administration of Government, Defense, and Compulsory Social Security sector. Furthermore, the developing sectors in West Java are the Manufacturing Industry, Electricity and Gas Supply, and the Information and Communication sector. Meanwhile, the mining and excavation sector is relatively lagging in West Java.

4. Conclusion

The province of West Java, with its diverse landscape comprising 18 regencies and 9 cities, showcases a rich tapestry of leading sectors, each possessing unique characteristics. Broadly speaking, the economic pillars in West Java encompass Healthcare and Social Activities, which serve as the bedrock of the region's well-being. These are closely followed by Water Supply, Waste Management, and Recycling, reflecting a commitment to sustainability, and Accommodation and Food Services, driven by the province's vibrant tourism

industry. The transportation and warehousing sector underscores West Java's strategic location, while Real Estate and Business Services contribute to its dynamism. Additionally, Other Services, alongside the agricultural sector, play vital roles, as substantiated by Klassen typology analysis, the LQ index, and plotting of LQ and net shift values.

Acknowledgment

We sincerely appreciate the support and cooperation of the people of West Java Province and the assistance from local authorities, institutions, and individuals who facilitated access to essential data and resources. Our dedicated team members' collective efforts and expertise were instrumental in conducting this research, and we acknowledge their hard work. We are also thankful for the guidance and mentorship our advisors and colleagues provided, which greatly enriched this study. Lastly, our gratitude goes to the funding agencies and institutions that made this research possible, contributing to a better understanding of West Java Province's economic landscape and prospects.

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